CITY OF LODI

COUNCIL COMMUNICATION

AGENDA TITLE:	Specifications and Advertisement for Bids for Polemount Transformers
MEETING DATE:	January 19, 2000
PREPARED BY:	Electric Utility Director

RECOMMENDED ACTION: That the City Council approve the specifications and authorize the advertisement for bids for thirty-two conventional polemount transformers in the following sizes:
10 each 25KVA 120/240V
15 each 37.5KVA 120/240V
7 each 50KVA 120/240V

BACKGROUND INFORMATION: These transformers will be used to replenish the Department's inventory for the 2000 peak load season.

FUNDING: Electric Utility Department's Operating Budget
Estimated Cost: $29,000

BID OPENING: February 23, 2000

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c: Manager, Electric Utility Engineering and Operations

APPROVED: H. Dixon Flynn – City Manager

TRANSFMR 01/11/00

SPECIFICATIONS

POLEMOUNTED TRANSFORMERS - OIL FILLED

DIVISION 1 - GENERAL REQUIREMENTS

1-1 GENERAL

Electrical design and materials shall conform to the latest EEI-NEMA and ANSI Standards. It is the intent of these specifications to describe equipment of the best design and construction, for the service for which it is intended. Consequently, it shall be the City's desire to award contracts to the bidder who has demonstrated high quality by having a considerable number of transformers of bidder's manufacture in service on the lines of electrical utilities over a period of years.

1-2 TESTS

Transformers shall receive at least the following tests in accordance with the applicable ANSI and NEMA Standards:

(1) Load and no-load loss

(2) Exciting current

(3) Polarity check

(4) Ratio check

(5) Applied and induced potential test

(6) Impulse voltage test

(7) Tank pressure test

1-3 SERVICE

The manufacturer shall own and operate a service shop in this vicinity, or the bidder may submit evidence of a repair contract with an approved service shop in this vicinity, which has been in effect for a period of at least one year. (For the purpose of this specification, "vicinity" shall mean within a 200-mile radius of the City of Lodi).

1-4 GUARANTEE

The Manufacturer shall guarantee all equipment delivered under these specifications against any and all defects in material and/or workmanship for a period of at least one year from date of acceptance. Manufacturer shall rectify all such defects by repair or replacement at manufacturer's sole expense and shall assume responsibility for associated shipping costs.

1-5 TECHNICAL INFORMATION

The following specifications shall be met:

1. Insulation level: 95 kv BIL (min).

2. Insulation rating: 65 $^{\circ}$C rise.

3. Paint: All exterior surfaces shall be painted ANSI 70 gray, using a system of coordinated and thoroughly tested materials and application techniques that will assure long life. Special attention shall be given to welds, seams, edges and rough spots.

4. Lifting Lugs: Lifting lugs shall be provided on the tank and shall be located

in such a way to avoid interference between lifting slings and any attachments on the transformer and to avoid scratching the transformer coating.

5. Tank: Tanks shall be tested at a pressure equal to or greater than the maximum operating pressure and for a sufficient period of time to insure that all welds are free from leaks. Tank construction shall be consistent with good manufacturing and design practices prevalent in the transformer industry, and together they should contribute to a high quality product.

6. Nameplate: Stainless steel or anodized aluminum nameplate shall be securely attached to the transformer by means of metal screws, rivets, or similar mechanical device(s). The letters and numbers shall be stamped or engraved on the nameplate. The nameplate shall include the words, "Fluid is less than one p.p.m. PCB," (refer to Section 1-7). The instruction nameplate shall contain the information specified in Section 5.12 of ANSI C57.12.00-1980.

7. Sound Level: The sound level shall be equal to or better than EEI-NEMA Standards.

8. Size: Size of the transformer, including radiators (fins), shall not interfere with installation or G.O. 95 requirements when banked together on cluster bracket (Dixie Electric P-538 or approved equal).

9. Height and Weight: Height and weight of the transformer shall be as listed below:

10. Pressure Relief Valve: The pressure relief valve shall be located a minimum horizontal distance of five (5) inches from the vertical centerline of the transformer hanger brackets.

Size (KVA)	Maximum Weight (lbs)	Maximum Height (inches) including bushings
15	400	45
25	500	45
37.5	625	48
50	800	51
75	1,100	51
100	1,200	51
167	1,600	51

1-6 LOSSES

Losses will be considered in the evaluation of this bid as follows:

No-load (core) loss @ $6.00/watt
Load (winding) loss @ $2.00/watt

The cost of losses will be added to the equipment price (bid price) F.O.B. Lodi, including maximum escalation and tax, to determine the evaluated low bid of vendor otherwise meeting these specifications. All bidders shall supply the following guaranteed loss data for use in the evaluation, in addition to other data listed in the specifications:

1. No-load losses in watts at rated secondary voltage.

2. Load losses in watts at rated secondary voltage and rated load. The standard reference temperature for load losses shall be 85 $^{\circ}$C.

3. Upon request, furnish certification/statement of the guaranteed loss measurement error of the test equipment and measurement method to be used, including the basis for determination of the accuracy of the test equipment and measurement method.

The successful bidder shall supply a certified test report of actual losses of the unit(s) to be supplied. The no-load and load losses for each group (type and size) of transformer(s) will be averaged separately within their respective categories (no-load and load losses). If the averaged tested no-load (core) and/or load(winding) losses of the transformer group exceed the watt losses quoted in the proposal, the contract price shall be reduced by the above amounts per watt of actual group averaged no-load and/or actual load loss in excess of that quoted in the proposal. No-load loss penalties will be evaluated separately from load loss penalties. No additional payment will be made to the manufacturer or bidder for actual losses lower than the losses quoted in the proposal.

Certified test report of losses shall be submitted by the manufacturer prior to or at the time of shipment of the transformer.

1-7 PCB CONTENT

Transformer fluid shall be guaranteed to contain less than one p.p.m. by weight (mg/kg) polychlorinated biphenyls (PCB). Certified test report of PCB content shall be produced upon request. The transformer nameplate shall include the words " Fluid is less than one p.p.m. PCB."

DIVISION 2 - SINGLE PHASE

2-1 GENERAL

In addition to that specified in Division 1 - General Requirements, transformers shall be provided with the following:

1. High Voltage Bushings (Porcelain):
   a. Quantity: Two
   b. Bushing terminals to be clamp-type suitable for use with copper and aluminum conductor.
2. Low Voltage Bushings:
   a. Quantity: 277-volt: Two
      All others: Three
   b. Shall be tank wall-mounted.
   c. Bushing terminals: 100KVA and lower: Shall be clamp-type suitable for use with copper and aluminum conductor.
      Over 100KVA: Shall be NEMA-4 pads (4-hole)
3. Pressure relief valve: Qualitrol 202-030-01, or an approved equal.
4. Lifting lugs shall be welded to the tank.
5. Provide tank grounding pad and a visible tank-to-cover ground strap.
6. Hanger brackets, welded to the tank.
7. Hanger brackets shall permit bolting of transformer directly to pole.
8. Single phase, 60Hz, OISC.

2-2 RATINGS AND DESIGN

Transformers shall have the following ratings and design:

1. Distribution type, pole-bolted transformer.
2. 12,000-Volt Delta primary.
3. Single phase
4. Without arresters and taps.
5. Conventional or CP type as specified on proposal form. CP transformers to have one weak link (fuse) per primary bushing and a breaker on the secondary side.
6. Secondary voltage to be as specified on the proposal form.
7. KVA rating to be as specified on the proposal form.